0042628

MAY 10 1995
55 Sta.5

ENGINEERING DATA TRANSMITTAL

1. EDT № 612156

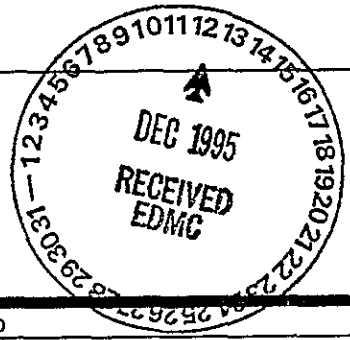
2. To: (Receiving Organization)	3. From: (Originating Organization)	4. Related EDT No.:
Distribution	Characterization Plans and Reports	N/A
5. Proj./Prog./Dept./Div.:	**6. Cog. Engr.:**	**7. Purchase Order No.:**
Tank 241-C-203/Waste Management/CPR/Char. Eng.	John M. Conner	N/A

8. Originator Remarks:
This document is being released into the Supporting Document System for retrievability purposes.

9. Equip./Component No.: N/A

10. System/Bldg./Facility: N/A

11. Receiver Remarks:
For Release.



12. Major Assm. Dwg. No.: N/A

13. Permit/Permit Application No.: N/A

14. Required Response Date: 05/16/95

15. DATA TRANSMITTED

(A) Item No.	(B) Document/Drawing No.	(C) Sheet No.	(D) Rev. No.	(E) Title or Description of Data Transmitted	(F) Approval Designator	(G) Reason for Transmittal	(H) Originator Disposition	(I) Receiver Disposition
1	WHC-SD-WM-DP-112	N/A	0	45-Day Safety Screen Results and Final Report for Tank 241-C-203, Auger Samples 95-AUG-020 and 95-AUG-021	Q	2	1	

16. KEY

Approval Designator (F)	Reason for Transmittal (G)	Disposition (H) & (I)
E, S, Q, D or N/A (see WHC-CM-3-5, Sec.12.7)	1. Approval 4. Review 2. Release 5. Post-Review 3. Information 6. Dist. (Receipt Acknow. Required)	1. Approved 4. Reviewed no/comment 2. Approved w/comment 5. Reviewed w/comment 3. Disapproved w/comment 6. Receipt acknowledged

17. SIGNATURE/DISTRIBUTION (See Approval Designator for required signatures)

(G) Reason	(H) Disp.	(J) Name	(K) Signature	(L) Date	(M) MSIN	(J) Name	(K) Signature	(L) Date	(M) MSIN	(G) Reason	(H) Disp.
2	1	Cog.Eng. J.M. Conner		5-16-95	H5-27						
2	1	Cog. Mgr. J.G. Kristofzski		5/16/95	T6-07						
2	1	QA W. A. Hendricksen		5/17/95	T6-03						
		Safety									
		Env.									

18. A.E. Young
Signature of EDT Originator — Date: 5-16-95

19. Authorized Representative for Receiving Organization — Date

20. J.G. Kristofzski
Cognizant Manager — Date: 5/16/95

21. DOE APPROVAL (if required) Ctrl. No.
[ ] Approved
[ ] Approved w/comments
[ ] Disapproved w/comments

RELEASE AUTHORIZATION

Document Number:	WHC-SD-WM-DP-112, REV 0
Document Title:	45-Day Safety Screen Results and Final Report for Tank 241-C-203, Auger Samples 95-AUG-020 and 95-AUG-021
Release Date:	5/18/95

This document was reviewed following the procedures described in WHC-CM-3-4 and is:

APPROVED FOR PUBLIC RELEASE

WHC Information Release Administration Specialist:

Kara M. Broz — May 18, 1995

SUPPORTING DOCUMENT

1. Total Pages 80

2. Title	3. Number	4. Rev No.
45-Day Safety Screen Results and Final Report for Tank 241-C-203, Auger Samples 95-AUG-020 and 95-AUG-021	WHC-SD-WM-DP-112	0

5. Key Words

45-Day Safety Screen, Safety Screen, Final Report, Tank 241-C-203, Tank C-203, C-203, Auger Sample, 95-AUG-020, 95-AUG-021

6. Author

Name: John M. Conner

Signature: J M Conner

Organization/Charge Code 75310/MDR21

7. Abstract

N/A

8. RELEASE STAMP

OFFICIAL RELEASE
BY WHC
DATE MAY 18 1995
55 Sta. 5

Westinghouse
Hanford Company

P.O. Box 1970 Richland, WA 99352

WHC-SD-WM-DP-112, REV. 0

ANALYTICAL SERVICES

45-DAY SAFETY SCREEN RESULTS AND FINAL REPORT FOR TANK 241-C-203, AUGER SAMPLES 95-AUG-020 AND 95-AUG-021

Date Printed: MAY 17, 1995

TABLE OF CONTENTS

This Document consists of pages 1 through 83.

NARRATIVE

45-DAY SAFETY SCREEN RESULTS AND FINAL REPORT FOR TANK 241-C-203, AUGER SAMPLES 95-AUG-020 AND 95-AUG-021

ANALYTICAL SUMMARY

Two core samples from tank 241-C-203 (C-203) were received at the 222-S Laboratories and underwent safety screening analysis, consisting of differential scanning calorimetry (DSC), thermogravimetric analysis (TGA), and total alpha activity. No notification limits were exceeded for the analyses. Two samples were submitted for a density determination at the request of Characterization Plant Engineering.

SCOPE

This document serves as the 45-day report deliverable for the tank C-203 auger samples collected on April 5, 1995 (samples 95-AUG-20 and 95-AUG-021). As no secondary analyses were required and no other analyses have been requested, this document also serves as the final report for C-203 auger sampling. Each sample was received, extruded, and analyzed by the 222-S Laboratories in accordance with the Tank Characterization Plan (TCP) referenced below. Included in this report are the primary safety screening results (DSC, TGA, and alpha) and density results. The worklists and raw data are included in this report. Photographs of the auger samples were taken during extrusion and, although not included in this report, are available.

SAMPLE RECEIPT, EXTRUSION, AND SUBSAMPLING

95-AUG-020

Sample 95-AUG-020 was collected from riser 7 (east coordinate) of tank C-203 using a 20-inch auger sampler. The sample was taken on April 5, 1995 at 0943 hours. It was received into the 222-S Laboratories on April 6 and extruded on April 7. The sampler was almost completely full. A total of 493.21 grams of solid material were collected, with no drainable liquid. The samples appeared to be yellow/cream colored overlaid with brown to dark brown sludge. Upon subsampling (and incidental mixing), the material appeared brown. The auger sample was divided into half segments for analyses. Archive samples of each half segment have been retained in the hot cell. The subsamples are identified in Table 1.

95-AUG-021

Sample 95-AUG-021 was collected from riser 7 (west coordinate) of tank C-203 using a 20-inch auger sampler. The sample was taken on April 5, 1995 at 1135 hours. It was received into the 222-S Laboratories on April 6 and extruded on April 7. The auger was completely full. A total of 627.69 grams of solid

material were collected, with no drainable liquid. The solids ranged from a yellow/cream color to dark brown. More yellow material was noticed on the upper half than on the lower half of the auger. Upon subsampling (and incidental mixing), the material appeared brown. The auger sample was divided into half segments for analyses. Archive samples of each half segment have been retained in the hot cell. The subsamples are identified in Table 1.

Table 1. Sample Identification

LABCORE #	Sample Description	Analysis
S95T000699	95-AUG-020 (riser 7-east) auger sample	extrusion
S95T000702	95-AUG-021 (riser 7-west) auger sample	extrusion
S95T000798	95-AUG-021 upper half	density
S95T000799	95-AUG-021 upper half, direct analysis	DSC/TGA
S95T000800	95-AUG-021 upper half, fusion/digest	Total alpha
S95T000801	95-AUG-021 upper half, archive	archive
S95T000802	95-AUG-021 lower half	density
S95T000803	95-AUG-021 lower half, direct analysis	DSC/TGA
S95T000804	95-AUG-021 lower half, fusion/digest	Total alpha
S95T000805	95-AUG-021 lower half, archive	archive
S95T000806	95-AUG-020 lower half	n/a
S95T000807	95-AUG-020 lower half, direct analysis	DSC/TGA
S95T000808	95-AUG-020 lower half, fusion/digest	Total alpha
S95T000809	95-AUG-020 lower half, archive	archive
S95T000810	95-AUG-020 upper half	n/a
S95T000811	95-AUG-020 upper half, direct analysis	DSC/TGA
S95T000812	95-AUG-020 upper half, fusion/digest	Total alpha
S95T000813	95-AUG-020 upper half, archive	archive

ANALYTICAL RESULTS

Analytical results are presented in Tables 2 and 3, with the applicable notification limits shaded.

DSC (Energetics Content)

DSC analyses were performed under a nitrogen atmosphere using either procedure LA-514-113, Rev. B-1 (Mettler instrument) or procedure LA-514-114, Rev. B-0 (Perkin-Elmer instrument). The results are given in Tables 2 and 3. Exotherms were detected for all four samples and their duplicates. The exotherms ranged from 30.82 to 97.33 J/g on a dry weight basis, or approximately 6 to 20 percent of the safety screening limit of 481 J/g. The relative percent differences (RPDs) between sample and duplicate results ranged from 1.04 to 6.38 on a dry weight basis. These results are within the TCP target of 10%. The three Laboratory Measurement Control System (LMCS) control standards exhibited recoveries of between 94.27 and 99.82 percent, which were within the program's specified accuracy control limits of 90 to 110 percent recovery.

TGA (Moisture Content)

Weight percent water was performed under a nitrogen atmosphere using either procedure LA-560-112, Rev. A-2 (Mettler instrument), or procedure LA-514-114, Rev. B-0 (Perkin-Elmer instrument). Results for the four samples and their duplicates ranged in value from 30.98 to 52.12 percent water by weight. Results for sample S95T000807 exceeded the RPD target of 10%. A triplicate analysis was performed, resulting in a determination of 39.79 weight percent water, compared to 41.04% and 33.26%. The triplicate result does not appear in the summary tables, but is included in the raw data.

There was a significant variation in results between samples, with upper half samples being drier than lower half samples. All samples were well above the safety screening minimum of 17 weight percent. Three LMCS control standards were run for these TGA analyses and exhibited recoveries ranging from 96.77 to 99.70 percent, which were within the program's specified accuracy control limits of 90 to 110 percent.

Total Alpha Activity

Analyses for total alpha activity were performed on four samples (S95T000800, S95T000804, S95T000808, and S95T000812). Samples were prepared by fusion using procedure LA-549-141, Rev. C-2, and analyses were performed using procedure LA-508-101, Rev. D-2. A sample duplicate was performed on each sample. Due to the poor sample reproducibility and spike recovery, the samples were rerun. Rerun results for samples S95T000808 and S95T000812 were retained, with the original results being rejected. However, the results of the rerun for samples S95T000800 and S95T000804 were less satisfactory than the original results (poorer spike recovery). Therefore, the original results for these samples were retained, and the results of the rerun were rejected.

Sample and duplicate results ranged from 0.55 to 2.83 μCi/g. The RPDs for samples S95T000800 and S95T000804 were 9.90% and 18.5%, respectively The TCP

target value is 10%. The RPDs for samples S95T000808 and S95T000812 were exceptionally high; 91.8% and 101% respectively. The chemist speculated that perhaps the duplicate samples were inadvertently mislabeled. If this assumption were correct, the sample and duplicate results would match much more closely (recalculated RPDs would be 4.33% and 16.8%).

Two control standards were run, with recoveries of 92.57 and 91.89%, within the TCP target of 90 to 110%. A spike was performed on sample S95T000800, with a recovery of 68.4%. This is outside of the TCP target recovery of 90 to 110%. Spike recoveries for alpha have typically been below the target criterion, particularly when solids can be observed on the sample mount (solids will be self-shielding to some extent).

The above problems were considered, but deemed not significant enough to warrant another set of digestions and analyses since the results were far below the safety screening limit of 41 μCi/g (highest sample result is only 7% of the limit).

Density

Characterization Plant Engineering requested a density determination on several auger samples. Their need was to verify that a Safety Analysis Report for Packaging (SARP-002) limit on the volume of waste allowed to be shipped in an auger sampler was not exceeded. The density was determined by procedure LO-160-103, Rev. A-7. Subsamples were centrifuged in a tared, graduated centrifuge cone. Two samples were submitted for density determination, with the results being 1.72 and 1.51 g/mL. These results are presented in Tables 2 and 3.

REFERENCE Schreiber, R. D., 1995, WHC-SD-WM-TP-306, Revision 0, "*Tank 241-C-203 Tank Characterization Plan*, dated March 6, 1995.

SD-WM-DP-112, Rev 0
241-C-203

Due to the large volume,
a copy of the data
supporting the Data
Validation Report and
the Sample Data Summary,

Pages 6 thru 11,

is available only from
Central Files.

CHAIN OF CUSTODY FORMS

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

(1) Shipment Number 200W-98-TF (2) Sample Number 95-AUG-021 (3) Supervisor R.J. Pheznik / 373-7751

(4) Tank C203 (5) Riser 17 WEST COORD. (6) Cask Serial Number C1022

Radiation Survey Data:	(7) FIELD	(11) LABORATORY
Over Top Dose Rate	<0.5	<.5
Side Dose Rate	.5	.5
Bottom Dose Rate	<0.5	<.5
Smearable Contamination	<20 (Alpha)	<20 (Alpha)
	<1K (Beta-Gamma)	<1K (Beta-Gamma)
RCT*	(Signature)	(Signature)

(8) Shipment Description

A. Work Package Number	ES-95-00011-0
B. Cask Seal Number	#1029
C. Date and Time Sample Removed from Tank	4-5-95 / 1135hrs
D. Expected Liquid Content	5%
E. Expected Solid Content	95%
F. Dose Rate Through Drill String	17mR/hr
G. Expected Sample Length	15"

(9) INFORMATION (Include statement of laboratory tests to be performed.)

(10) Field Comments

(32) Laboratory Comments

(11) Point of Origin	(12) Destination	(13) Sender Name (Sign and PRINT)	(14) Date/Time	(15) Sender Comments
C203-R/7 West coord.	222S-LABS	DA Krahn, DA KRAHN	4-6-95/1025	
(17) Relinquished By (Sign and PRINT)	(18) Received By (Sign and PRINT)	(19) Date/Time	(20) Receiver Comments	
DA Krahn DA KRAHN	[signature]	4-6-95 1025		
(21) Relinquished By (Sign and PRINT)	(22) Received By (Sign and PRINT)	(23) Date/Time	(24) Receiver Comments	
[signature]	EE Dubes EE Dubes	4-6-95		
(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)	(27) Date/Time	(28) Receiver Comments	

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?		
		Shipment No.	Cask Seal No.	Sample No.
☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No	☒ Yes ☐ No

Pink - Waste Tank Sampling, F7-12 Goldenrod - Tank Farm Operations, T4-01 BC-6001-326 (03/

WHC-SD-WM-DP-112, REV. 0

T3

LAB DATA MGMT → RESTINGHOUSE 509 372 2929 04/06/95 12:02

CHAIN-OF-CUSTODY RECORD FOR AUGER SAMPLING

COPY

(1) Shipment Number 200W-08-TF (2) Sample Number 95-AV6-020 (3) Supervisor R.J. Penznik / 373-7251

(4) Tank C203 (5) Riser R7, EAST Coord. (6) Cask Serial Number C1038

Radiation Survey Data:	(7) FIELD	(31) LABORATORY
Over Top Dose Rate	<0.5	<.5
Side Dose Rate	.8	.5
Bottom Dose Rate	<0.5	<.5
Smearable Contamination (Alpha)	<20	<20 (Alpha)
(Beta-Gamma)	<1K	<1K (Beta-Gamma)
RCT* (Signature)	GM Brewer	RCT* (Signature)

(8) Shipment Description

A. Work Package Number	ES-95-00011-0
B. Cask Seal Number	#1028
C. Date and Time Sample Removed from Tank	4-5-95 / 0943hrs
D. Expected Liquid Content	5%
E. Expected Solid Content	95%
F. Dose Rate Through Drill String	25 mR/hr
G. Expected Sample Length	19 ft

(9) INFORMATION (Include statement of laboratory tests to be performed.)

(10) Field Comments

(32) Laboratory Comments

(11) Point of Origin C203 R/T coord EAST	(12) Destination 222S LAB	(13) Sender Name (Sign and PRINT) DA KRAHN DA Krahn	(14) Date/Time 4-6-95 / 1025	(15) Sender Comments
(17) Relinquished By (Sign and PRINT) DA Krahn DA KRAHN	(18) Received By (Sign and PRINT)		(19) Date/Time 4-6-95 1615	(20) Receiver Comments
(21) Relinquished By (Sign and PRINT) Jubal D. Helms Jubal D Helms	(22) Received By (Sign and PRINT)		(23) Date/Time 4-6-95 1110	(24) Receiver Comments
(25) Relinquished By (Sign and PRINT)	(26) Received By (Sign and PRINT)		(27) Date/Time	(28) Receiver Comments

(16) Seal Intact Upon Release?	(29) Seal Intact Upon Receipt?	(30) Seal Data Consistent with this Record?		
	☑ Yes ☐ No	Shipment No. ☑ Yes ☐ No	Cask Seal No. ☑ Yes ☐ No	Sample No. ☑ Yes ☐ No

WHC-SD-WM-DP-112, REV.0

DC-0001-320 (03/9

SD-WM-DP-112,
Rev 0, 241-C-203

Due to the large volume,
a copy of the data
supporting the Data
Validation Report and
the Sample Data Summary,

Pages 5 thru 83,

is available only from
Central Files.